

Warmup!

Solve.

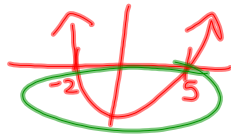
$$x^2 - 3x - 10 < 0$$

$$(x-5)(x+2) < 0$$

5 -2

$$(-2, 5)$$

$$\{x \mid -2 < x < 5\}$$



Extension

$$x^2 - 3x - 10 > 0$$

$$(-\infty, -2) \cup (5, +\infty)$$

Ch 6 Test Review

6.1 Graphing

 $V(-\frac{b}{2a})$ (vertex, aos, y-int)
Max or min
~~6.2~~ Solve by graphing

6.3 Solve by factoring

Word Problems Max/Min

6.4 Completing the Square

6.5 Quadratic formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Discriminant

$$b^2 - 4ac$$

 $D > 0$ Rational
 $D < 0$ Irrational/Imaginary
 $D = 0$ IR double

6.6 Analyzing Graphs of

Quadratic Functions (vertex form)

Extra Sum and product of roots

6.7 Quadratic Inequalities

graph

solve

$$\{3 \pm \sqrt{5}\}$$

$$3 + \sqrt{5} \quad 3 - \sqrt{5}$$

$$\text{sum} = 6$$

$$\text{product} = 9 - 5 = 4$$

$$x^2 - 6x + 4 = 0$$

$$x^2 - 6x + k = 0$$

Find k so that double

$$D = 0$$

$$36 - 4(1)k = 0$$

$$36 = 4k$$

$$9 = k$$

$$x^2 - 6x + 4 = 0$$

Solve by comp. sq.

$$x^2 - 6x + 9 = -4 + 9$$
$$(x - 3)^2 = 5$$
$$x - 3 = \pm\sqrt{5}$$
$$x = 3 \pm \sqrt{5}$$

$$y = -4x^2 + 16x - 11$$
$$y + 11 = -4x^2 + 16x$$
$$y + 11 - 16 = -4(x^2 - 4x + 4)$$
$$y - 5 = -4(x - 2)^2$$
$$y = -4(x - 2)^2 + 5$$

$V(2, 5)$